

## Nomenclatural Changes in Old World Crabronidae (Hymenoptera), with Taxonomic Comments and New Distribution Records

WOJCIECH J. PULAWSKI

California Academy of Sciences, Golden Gate Park, San Francisco, California 94118, USA;  
email: wpulawski@calacademy.org

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*Abstract.*—The following nominal species are newly synonymized (the valid names are listed last): *Cerceris insularis* F. Smith, 1856 = *Cerceris arenaria* (Linnaeus, 1758); *Oxybelus rufipes* Taschenberg, 1880 = *Oxybelus lamellatus* Olivier, 1811; *Tachytes astatifomis* Tsuneki, 1963 = *Tachytes pygmaeus* Kohl, 1888; *Tachytes decorsei* Berland, 1942, and *falciger* Arnold, 1951 = *Tachytes chudeaui* Berland, 1942; *Tachytes diversicornis* Turner, 1918, *niger* Berland, 1942, *senegalensis* Berland, 1942, *tassilicus* Pulawski, 1962, and *hengclumensis* Tsuneki, 1967 = *Tachytes xenoferus* Rohwer, 1911; *Tachytes eurous* Pulawski, 1962 = *Tachytes aeneus* Saunders, 1910; and *Tachytes rostratus* Berland, 1942 = *Tachytes basilicus* Guérin-Méneville, 1844. A new name, *Tachytes dogon*, is proposed for *Tachytes rufipes* Berland, 1942, a junior primary homonym of *Tachytes rufipes* Aichinger, 1870.

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My fieldwork in various parts of the Old World, as well as visits to museums, revealed previously unnoticed synonymies, which are discussed below. The relevant types have been examined, except for that of *Oxybelus lamellatus* Olivier which is no longer in existence, for *Cerceris arenaria* Linnaeus whose identity has been firmly established (Richards 1935, Day, 1979), and for *Tachytes basilicus* Guérin-Méneville whose identity was confirmed by Pulawski (1962). The abbreviations used in the text for the institutional or personal collections that house these types or other specimens discussed are:

BMNH: The Natural History Museum, formerly British Museum (Natural History), London, United Kingdom  
CAS: California Academy of Sciences, San Francisco, California, USA  
CSE: Christian Schmid-Egger, Herrsching-Breitbrunn, Germany (personal collection)  
GENOVA: Museo Civico di Storia Naturale "Giacomo Doria", Genova, Italy

HALLE: Institut für Zoologie, Martin-Luther Universität Halle Wittenberg, Halle, Germany  
KOBE: Entomological Laboratory, Faculty of Agriculture, Kobe University, Rokko, Kobe, Japan  
MNHN: Muséum National d'Histoire Naturelle, Paris, France  
NHMW: Naturhistorisches Museum, Wien, Austria  
OXUM: Oxford University Museum of Natural History, Oxford, United Kingdom  
USNM: U.S. National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA

### *Cerceris arenaria*

*Sphex arenaria* Linnaeus, 1758:571. Holotype: ♀, Sweden: no specific locality (Linnean Society, London). – Richards, 1935:169 (study of holotype); Day, 1979:50 (study of holotype).  
*Cerceris insularis* F. Smith, 1856:444, ♀. Holotype or syntypes: ♀, Italy: Sicily: no specific locality (BMNH), examined. **New synonym.** – Schletterer, 1887:441 (as tentative synonym of *Cerceris ferreri*); Dalla Torre, 1897:460 (listed

as synonym of *Cerceris ferreri*). – As *Cerceris flavilabris insularis*: Bohart and Menke, 1976:581 (listed); Pagliano, 1990:97 (in catalog of Italian Sphecidae).

The only specimen of Smith's *insularis* in the BMNH is a typical female of the common Palearctic species *arenaria*, with a distinctive clypeal lamella.

### *Oxybelus lamellatus* Olivier

*Oxybelus lamellatus* Olivier, 1811:595, sex not indicated. Syntypes: Egypt: no specific locality; and Iraq: Baghdad area (destroyed).

*Oxybelus rufipes* Taschenberg, 1880:781, ♀, ♂. Lectotype: ♀, Ethiopia: no specific locality (HALLE), present designation. New synonym.

I follow de Beaumont (1950:413) in his interpretation of *Oxybelus lamellatus*. The species is characterized by the following combination: mucro reddish brown, foliaceous, emarginate apically; postscutellum yellow between lamellae (except in many males), lamella divided apically; sternum II coarsely punctate except punctures contrastingly fine laterally; antennal flagellum and femora red; pygidial plate of female unusually broad; and male terga III-VI with conspicuous lateral spines. All these characters are found in the syntypes of *Oxybelus rufipes*.

### *Tachytes aeneus* Saunders

*Tachytes aeneus* Saunders, 1910:522, ♂ (as *aenea*, incorrect original termination). Syntypes: ♂, Algeria: Biskra (OXUM), one syntype examined before 1962. – Morice, 1911:99 (Algeria: Biskra); de Beaumont, 1955:172 (Morocco: Marrakech); Pulawski, 1962:421 (in revision of Palearctic *Tachytes*); R. Bohart and Menke, 1976:263 (listed).

*Tachytes eurous* Pulawski, 1962:423, ♀. Holotype: ♀, Israel: Eyn Aoseb, now Hatzeva (originally H. Bytinski-Salz collection, now Tel Aviv University). **New synonym.** – de Beaumont, Bytinski-Salz and Pulawski, 1973:7 (Israel); R. Bohart and Menke, 1976:265 (listed).

I described *Tachytes eurous* from a single female from Israel, because I suspected it

may not be conspecific with the western North African *aeneus*, known only from the male. A recent study of topotypical females and males from both Morocco and Israel convinced me that only one species is involved. These two names are therefore synonyms.

*Tachytes aeneus* has a unique propodeal dorsum that has a triangular, ridged, glabrous area extending from base to apex (orientation of ridges varies from transverse to longitudinal). Also, the erect setae are all or largely absent on the scape, but present on tergum I. The female clypeus, with its free margin emarginate mesally and sharply pointed lip corner, is also distinctive. For additional characters, see Pulawski (1962:420).

*Material examined.* —ISRAEL: En Shahak in En Yahav Makhteshim Reserve at 30°42.8'N 35°11.1'E (1 ♀, 1 ♂, CAS; 1 ♂, CSE), Iddan in Arava Valley at 30°48.9'N 35°16.8'E (1 ♀, 2 ♂, CSE). MOROCCO: Marrakech (1 ♀, 1 ♂, CAS).

### *Tachytes basilicus* (Guérin-Ménéville)

*Lyrops basilicus* Guérin-Ménéville, 1844:440, ♀. Holotype: E, Senegal: no specific locality (GENOVA). – As *Tachytes basilicus*: F. Smith, 1856:300 (new combination, listed, spelled *basilica*); Pulawski, 1962:416 (full bibliography, synonymy, revision).

*Tachytes rostratus* Berland, 1942:6, ♂ (as *rostrata*, incorrect original termination). Holotype: ♂, Chad: Moyen Chari: Fort Archambault, now Sarh (MNHN), examined. **New synonym.**

The holotype of *rostratus*, a badly worn specimen with gastral pubescence matted by moisture, has all the distinctive characters of *basilicus* described by Pulawski (1962). I could not find any noteworthy differences when comparing it to specimens of *basilicus*.

The most important recognition features of *basilicus* are (Pulawski 1962): mouthparts elongate (in particular, galea markedly longer than scape and without transverse suture); clypeal free margin only slightly concave between lobe and eye orbit; hindfemur without apical lobe; pilosity

concealing integument at scutal forecorners; and gaster red at least basally, with appressed golden vestiture. In the female, the setae of the pygidial plate do not conceal the integument, and in the male the apical margin of sternum VIII is only slightly emarginate, almost entire.

### *Tachytes chudeaui* Berland

*Tachytes chudeaui* Berland, 1942:3, ♀ (as *Chudeaui*, incorrect original capitalization). Holotype: ♀, Mali: Niafunké near Toumbouctou (MNHN), examined. – R. Bohart and Menke, 1976:264 (listed).

*Tachytes decorsei* Berland, 1942:7, ♂ (as *Decorsei*, incorrect original capitalization). Holotype: ♂, Mali: Douentza (MNHN), examined. **New synonym.** – R. Bohart and Menke, 1976:264 (listed).

*Tachytes falciger* Arnold, 1951:152, ♂ (as *falcigera*, incorrect original termination). Holotype: ♂, Mauritania: Aleg (BMNH), examined. **New synonym.** – R. Bohart and Menke, 1976:265 (listed).

The species is a typical member of the *obsoletus* group as defined by Pulawski (1962). It can be recognized by the following characters: postocellar area narrow (least interocular distance equal  $1.1 \times$  length of flagellomere I in the female and  $0.9\text{--}1.4 \times$  in male), with erect setae and most punctures less than one diameter apart, apical lobe of hindfemur relatively large, as in *archaeophilus* Pulawski (see Figs 71 and 72 in Pulawski, 1962), hindfemoral venter without erect setae, tergum I with erect setae (only laterally in female and small males), femora and tibiae all black. Female: clypeal bevel rudimentary, terga I and II red (remainder black), tergum V with silvery pubescence laterally. Male: ventral margin of flagellomeres VIII and IX expanded (in many specimens also that of flagellomere X), gaster all black.

The species was previously known from Mauritania and Mali, but it also occurs in Burkina Faso and Niger.

*Material examined* (all CAS). —**BURKINA FASO:** Pala (1 ♂). **NIGER:** Agadez Region:

5 km N Agadez at 17°01.2'N 8°00.7'E (1 ♀, 16 ♂), 30 km S Agadez at 16°39.0'N 7°56.9'E (1 ♂). **Diffa Region:** 3 km N Diffa at 13°21.3'N 12°36.7'E (1 ♂), 8 km N Diffa at 13°24.1'N 12°36.2'E (3 ♀, 1 ♂), 54 km NE Diffa at 13°42.3'N 12°55.8'E (3 ♂), 87 km NE Diffa at 14°02.9'N 12°58.5'E (1 ♀), 14 km W Diffa at 13°15.8'N 12°29.0'E (2 ♂), 34 km SW Nguigmi at 13°58.8'N 12°58.2'E (1 ♀), 42 km SW Nguigmi at 13°54.5'N 12°56.5'E (4 ♀). **Dosso Region:** 13 km S Dosso at 12°56.6'N 3°11.0'E (3 ♀) 15 km N Gaya at 11°59.6'N 3°32.2'E (1 ♂). **Maradi Region:** 15 km NNW Maradi at 13°37.9'N 7°03.0'E (3 ♂), 17 km NNW Maradi at 13°38.7'N 7°02.6'E (1 ♂). **Tahoua Region:** Tahoua at 14°53.5'N 5°16.6'E (3 ♀). **Tillabéri Region:** 11 km N Ayorou at 14°49.3'N 0°52.2'E (2 ♂), 8 km SE Kollo at 13°16.4'N 2°22.0'E (1 ♀), Malalé 10 km E Niamey at 13°27.1'N 2°10.4'E (1 ♀), 21 km N Niamey at 13°33.2'N 2°21.5'E (3 ♀), 63 km NW Niamey at 13°53.4'N 1°35.2'E (1 ♂), 82 km ESE Téra at 13°51.1'N 1°31.3'E (2 ♂), 15 km NW Tillabéri at 14°17.3'N 1°20.5'E (1 ♀, 1 ♂). **Zinder Region:** 21 km W Gouré at 13°51.2'N 10°07.8'E (1 ♀), 3 km S Takiéta at 13°39.6'N 8°30.7'E (1 ♂), 6 km S Takiéta at 13°37.1'N 8°30.6'E (1 ♂), 45 km S Tanout at 14°37.4'N 8°44.3'E (1 ♂).

### *Tachytes dogon* Pulawski, new name

*Tachytes chudeaui* var. *rufipes* Berland, 1942, ♀, ♂ (♀ = *Tachytes saharicus*), junior primary homonym of *Tachytes rufipes* Aichinger, 1870, which is a junior synonym of *Tachysphex brullii* (F. Smith, 1856). Lectotype: ♂, Mali: Douentza (MNHN), designated by Pulawski, 1962:385, reexamined in 2005. – As *Tachytes rufipes*: Pulawski, 1962:385 (new status).

Named after the Dogon people of Mali.

This species can be recognized by the following characteristics. Galea shorter than scape, female clypeus noncarinate and apical depression of sternum II impunctate, male forecoxa and foretrochanter not modified. The following are red: scape, flagellum partly, femora, tibiae, and tarsi; wings yellow, infumate along distal margin (infumate portion wears off in old specimens); gaster at least partly red. Hindfemur without apical lobe at apicov-

entral angle of outer side (see Figure 73J in Bohart and Menke, 1976, for lobe present). In female, punctures of pygidial plate markedly more spaced than average in genus, especially anterolaterally (integument easily visible between the setae except posteriorly). In male, width of postocellar area (= least interocular distance) about equal to midocellar width; midbasitarsal venter evenly curved except somewhat expanded apically, without spines; apex of sternum VIII only slightly emarginate (markedly less than average for the genus). Hindfemoral venter with no erect setae in female and many males, but a few suberect setae present on basal half in some males (setal length no greater than midocellar width).

*Material examined* (all CAS): **MALI:** 10 km E Mopti (4 ♀, 10 ♂). **NIGER:** **Diffa Region:** 42 km SW Nguigmi at 13°54.5'N 12°56.5'E (1 ♂). **Tillabéri Region:** 11 km N Ayorou at 14°49.3'N 0°52.2'E (1 ♂), 82 km ESE Téra at 13°51.1'N 1°31.3'E (2 ♂). **Zinder Region:** 19 km E Gouré at 13°52.6'N 10°24.9'E (1 ♂), 27 km W Guidiguir at 13°40.9'N 9°39.1'E (2 ♂), 29 km NW Magaria at 13°09.1'N 8°41.3'E (1 ♂), 3 km S Takiéta at 13°39.6'N 8°30.7'E (6 ♂), 45 km S Tanout at 14°37.4'N 8°44.3'E (1 ♂).

### *Tachytes pygmaeus* Kohl

*Tachytes pygmaea* Kohl, 1888:134, ♀, ♂ (♂ = *Tachytes argyreus* F. Smith), incorrect original termination. Lectotype: ♀, Egypt: no specific locality (NHMW), designated by Pulawski, 1962:465.

*Tachytes astatiformis* Tsuneki, 1963:6, ♂. Holotype: ♂, Thailand: Chiangmai (KOB), examined. **New synonym.** – R. Bohart and Menke, 1976:236 (listed).

*Tachytes pygmaeus* is easily recognized by its glabrous propodeal dorsum combined with an emarginate posterior mandibular margin and the propodeal spiracle separated from the postnotum by less than its own length. *Tachytes dichrous* F. Smith is the only other member of the genus with an entirely asetose propodeal dorsum. Unlike *pygmaeus*, the mandibular posterior

margin of *dichrous* is not emarginate, and the propodeal spiracle is separated from the postnotum by more than its own length, among other characters.

Pulawski (1962:465) gave Egypt, Morocco, and Sudan as the geographic distribution of *pygmaeus*, but Bohart and Menke (1976:266) correctly listed it from all of Africa, India, and Sri Lanka. The new synonymy extends its range to Thailand.

### *Tachytes xenoferus* Rohwer

*Tachytes xenoferus* Rohwer, 1911:581, ♀, ♂.

Holotype: ♂, India: Gujarat: Deesa (USNM), examined.

*Tachytes diversicornis* R. Turner, 1918:94, ♂, ♀.

Lectotype: ♂, Pakistan: Karachi (BMNH), designated by Pulawski, 1975a:316, examined. **New synonym.**

*Tachytes Chudeaui* var. *niger* Berland, 1942:4, ♀

(as *nigra*, incorrect original termination). Holotype: ♀, (Mali?): Middle Niger basin: Siganara (MNHN), reexamined in 2005. **New synonym.** – As *Tachytes niger*: Pulawski, 1962:402 (new status). – As *Tachytes chudeaui niger*: Bohart and Menke, 1976:264 (new status, listed).

*Tachytes senegalensis* Berland, 1942:9, ♂. Holotype: ♂, Mali: Kayes (MNHN), examined in 2005. **New synonym.**

*Tachytes tassilicus* Pulawski, 1962:401, ♂. Holotype: Algeria: Djanet (MNHN), reexamined in 1991. **New synonym.**

*Tachytes hengchunensis* Tsuneki, 1967:47, ♀, ♂. Holotype: E, Taiwan: Pingtung County: Hengchun (originally K. Tsuneki coll., now USNM), examined in 2005. **New synonym.** – Haneda, 1971:30 (Taiwan); Tsuneki, 1971:8 (Taiwan); Haneda, 1972:4 (Taiwan; as *fengchunensis*); Murota, 1973:118 (Taiwan); R. Bohart and Menke, 1976:265 (listed); Tsuneki, 1977:269 (Taiwan); Nuhn and Menke, 1994:25 (holotype transferred to USNM); Porter, Stange, and Wang, 1999:8 (in checklist of Sphecidae of Taiwan).

*Tachytes xenoferus* is a member of the *maculicornis* group as defined by Pulawski, 1962:390. It is characterized by an all black gaster and the absence of erect setae on the midfemoral venter (erect setae may be present or absent on sternum II). Other

characters include: mouthparts short (galea shorter than scape), propodeal dorsum and side not ridged, female clypeus not carinate, apical depression of sternum II impunctate, and pygidial plate somewhat acute apically, male forecoxa and foretrochanter not modified. Both sexes can be recognized from similar species by midtarsomere III slightly shorter than II (rather than equal in length).

The male of *Tachytes xenoferus* is characterized by the midbasitarsus expanded apically, midtarsomere II not modified, sternum VIII with usual, short setae, most or all of the clypeal bevel densely punctate (punctures less than one diameter apart or nearly so), and in many specimens middle flagellomeres yellowish to a various degree. These characteristics are shared by the male of *diversicornis*, which clearly is a junior synonym. The hindfemur is minimally concave basoventrally in many specimens (including the holotypes of *xenoferus* and *diversicornis*). Also, flagellomeres IX and X are only minimally expanded apicoventrally (in the holotype of *xenoferus*, a stylopized specimen, only flagellomeres I and II are preserved on one antenna, and I-VI on the other). The other species in which the male has an apically expanded apex of midbasitarsus differ from *xenoferus* as follows (in addition to the midtarsomeres II and III). In *argenteus* Gussakovskij, the clypeal bevel has only a few, sparse punctures. In *flagellarius* Nurse, flagellomeres IV-X are markedly expanded ventrally and the hindfemur is markedly concave basoventrally. In *maculicornis* E. Saunders, flagellomeres III-VII are roundly expanded ventrally, the hindfemur is markedly concave basoventrally, and midtarsomere II is asymmetrical, with apex expanded anteroventrally. In *sacricola* Pulawski, the hindfemur is markedly concave basoventrally and midtarsomere II is asymmetrical, with apex expanded anteroventrally. Finally, in *trichopygus* Pulawski (female unknown), setae of sternum

VIII are conspicuously elongate (apical setae  $3 \times$  midocellar diameter).

I described *Tachytes tassilicus* from a single male and I thought that it differed from *diversicornis* (i. e., *xenoferus*) in having the hindfemoral venter not concave basally and the thoracic setae golden (contrasting with gastral setae). A study of additional material convinced me that these differences do not stand scrutiny. In fact, the hindfemoral venter varies from slightly concave to entire, and the thoracic vestiture may be silvery in specimens with nonconcave hindfemoral venter, and golden in specimens with a slightly concave venter. Clearly, these two names are synonyms (as well as synonyms of *xenoferus*). The holotype of *Tachytes senegalensis* is identical to *tassilicus* and is therefore another synonym of *xenoferus*.

Specimens from Niger vary markedly in color. In most, the femora and the tibiae are black. In several females, however, part of the forefemur and the mid- and hindfemora are red, and in some all the femora are red. In several males, all the tibiae and the hindfemur are red (the hindfemur may be black basally), and in some also a part of the midfemur is red.

I thought (Pulawski, 1962:403) that *Tachytes niger* Berland was an invalid junior homonym of *Tachytes niger* Vander Linden, 1829. This opinion was incorrect, as Vander Linden (1829) did not describe the species, but transferred to *Tachytes* the species *Sphex niger* Fabricius, 1775 (which is currently placed in *Liris*, see International Commission on Zoological Nomenclature, 1973, Opinion 997).

*Tachytes xenoferus* was described from the Gujarat State of India, while Pulawski (1962:401) listed it (as *diversicornis*) from Pakistan, Israel, Egypt, and Sudan, and Bohart and Menke (1976:264) added Ghana, Ethiopia, and Mali. I collected the species in Burkina Faso, Niger, and Oman, and I examined specimens from Saudi Arabia, India, Sri Lanka, Thailand, and Taiwan.

*Material examined* (all CAS): **BURKINA FASO**: 36 km NE Bobo Dioulasso at 11°23.3'N 4°04.3'W (2 ♀, 1 ♂), 71 km NNW Bobo Dioulasso at 11°42.0'N 4°31.4'W (2 ♂), 28 km NE Dédougou at 12°35.5'N 3°15.6'W (2 ♀), 38 km SSW Dédougou at 12°10.5'N 3°36.5'W (5 ♂), 10 km E Dori 14°00.5'N 0°03.2'E (1 ♂), 39 km E Dori 13°58.1'N 0°17.5'E (1 ♂), 4 km NE Dori at 14°03.8'N 0°03.1'E (2 ♀, 3 ♂), 15 km S Gorom Gorom at 14°21.4'N 0°07.9'E (2 ♀, 15 ♂), 36 km E Koudougou at 12°12.0'N 2°01.6'W (1 ♀), 69 km W Koudougou at 12°14.8'N 2°57.7'W (1 ♀), 17 km S Koupela at 12°02.2'N 0°21.8'E (1 ♀, 1 ♂), 80 km S Ouagadougou at 11°40.9'N 1°14.2'W (1 ♂), 13 km NE Ouahigouya at 13°38.9'N 2°19.6'W (1 ♂), 4 km NW Ouahigouya at 13°37.0'N 2°27.6'W (2 ♀, 12 ♂), 15 km SSE Ouahigouya at 13°27.0'N 2°22.9'W (1 ♂), 52 km SSE Ouahigouya at 13°07.3'N 2°20.8'W (1 ♂), 2 km W Pô, 11°11.0'N 1°09.5'W (3 ♂). **INDIA: Pondichery Territory**: Karikal (4 ♂). **Tamil Nadu**: Coimbatore (1 ♀). **NIGER: Agadez Region**: 0.5 km SE Aderbissinat at 15°36.9'N 7°54.0' E (1 ♀), 5 km N Agadez at 17°01.2'N 8°00.7'E (1 ♀, 6 ♂). **Dosso Region**: 13 km S Dosso at 12°56.6'N 3°11.0'E (1 ♂), 39 km S Dosso 12°40.1'N 3°10.6'E (6 ♂), 15 km N Gaya at 11°59.6'N 3°32.2'E (1 ♀, 1 ♂). **Maradi Region**: 23 km NNW Maradi at 13°42.3'N 7°01.4'E (1 ♂). **Niamey Region**: 8 km NW Niamey at 13°35'8N 1°59.9'E (2 ♀, 1 ♂). **Tillabéri Region**: 13 km N Ayorou at 14°50.1'N 0°52.4'E (1 ♀, 2 ♂), 2 km SE Kollo at 13°19.6'N 2°19.9'E (1 ♀, 1 ♂), Malalé 10 km E Niamey at 13°27.1'N 2°10.4'E (1 ♀, ♂), 13 km N Niamey at 13°32.6'N 2°16.4'E (1 ♀), 15 km NW Tillabéri at 14°17.3'N 1°20.5'E (1 ♂), 30 km SSW Torodi at 12°49.5'N (1 ♀). **Zinder Region**: Bosotchouwa 20 km SW Takiéta at 13°30.1'N 8°31.9'E (1 ♂), 49 km SW Dengas at 12°52.8'N 8°58.6'E (1 ♀), 18 km N Gouré at 14°08.7'N 10°11.6'E (1 ♀, 1 ♂), 21 km W Gouré at 13°51.2'N 10°07.8'E (1 ♀), 23 km NNW Maradi at 13°42.3'N 7°01.4'E (1 ♀), 3 km S Takiéta at 13°39.6'N 8°30.7'E (3 ♀, 1 ♂), 6 km S Takiéta at 13°37.1'N 8°30.6'E (1 ♀), 31 km NW Tanout at 15°05.6'N 8°36.1'E (1 ♂), 11 km S Tanout at 14°52.6'N 8°52.3'E (1 ♀), 18 km S Tanout at 14°48.3'N 8°51.9'E (1 ♂), 37 km S Tanout at 14°38.2'N 8°42.6'E (2 ♂), 45 km S Tanout at 14°37.4'N 8°44.3'E (1 ♀), 55 km S Tanout 14°31.2'N 8°44.3'E (1 ♂), 44 km N Zinder 14°12.9'N 8°49.3'E (1 ♀, 1 ♂), 52 km N Zinder at 14°17.2'N 8°46.9'E (1 ♀), 37 km S Zinder at

14°13.3'N 9°00.5'E (4 ♀, 2 ♂), 45 km S Zinder at 13°27.3'N 9°00.5'E (1 ♂). **OMAN**: Wadi Ghul near Nizwa at 22°53.0'N 57°31.2'E (1 ♀). **SAUDI ARABIA**: El Riyadh (2 ♀, 5 ♂), Haddat Ash Sham (1 ♀). **SRI LANKA: Colombo District**: Ratmalana (1 ♀). **Mannar District**: Kokmotte Bungalow 0.5 mi. NE Wilpattu (1 ♂). **TAIWAN: Pingtung Shih (county)**: Kentin (1 ♂), Manchou (1 ♀, 1 ♂). **Taitung Shih**: Tulan (1 ♀). **Shih unknown**: Anping (1 ♂), Taihorin (1 ♀). **THAILAND: Songkhla Province**: Hat Yai (1 ♀).

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